

degrees of consistency without altering the relative position of the same, which cannot fail to be of interest and value to such as wish to make and mount thin sections of corals or alcyonarians, while in most of the numbers there are under this head to be found notices of collections for sale or specimens to be exchanged, and when this journal becomes, as we have no doubt it will, known to all directors and assistant-directors of zoological museums we anticipate for this section a very extended use. Another portion of the journal is devoted to short notices on general zoological subjects. Thus No. 11 contains a short notice by Prof. Salensky, of Kasan, on the embryology of the ganoids; one by Prof. Goette, of Strasburg, on the development of the bones in the limbs of vertebrates; a note by Dr. A. Gruber, of Freiburg, on the formation of the oviducts in the Copepods; one by Prof. Entz, of Klausenberg (Hungary), on the evolution of gas from the protoplasm of some protozoa, in confirmation of a record of the same fact by Prof. T. W. Engelmann; and one by Prof. E. Martens, on our knowledge of thread-spinning snails.

Another characteristic of this new journal is that, under the heading "Personal-Notizen," will be found a very exact list of all the museums and schools of anatomy and zoology in the world, commencing with those in Germany. This list has now got as far as Belgium. The directors' and assistant-directors' names, with those of the professors and assistant-professors, are given in full, and if, when the list is complete, an index of the names of the various teachers in all the colleges and schools were added, the list would serve many a useful purpose.

We feel persuaded that this most useful little journal will require only to be known in this country to be duly appreciated, and we wish its talented editor every success in his undertaking.

E. P. W.

*La Vegetacion del Nordeste de la Provincia de Entre-Rios. Informe Cientifico. Del Dr. Don P. G. Lorentz. (Buenos Aires, 1878.)*

THIS is a book, or rather a pamphlet, of 179 pages of closely-printed matter, and illustrated by two maps of the country described, the nature of which with regard to its vegetation is very carefully recorded in the first division, which occupies forty-seven pages. The second part consists of a list of species arranged scientifically under each natural order, the paragraph referring to the individual plant comprising such information as to the frequency or scarcity of the species, the colour of the flowers, period of flowering, and any properties for which the plant may be economically valuable. These lists are useful in many ways, for instance they often show the widespread geographical range of many well-known plants, and in the lists before us we find many European introductions. A separate list of thirty-two species of fungi is added, and some notes on the maps given.

## LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

### Was Homer Colour-Blind?

UPON reading Dr. Pole's two papers (NATURE, vol. xviii. pp. 676, 700) my first feeling was to ask: "But how could

'The blind old man of Scio's rocky isle'

know anything at all about colour?" Presuming, however, that the tradition of his blindness might be unwarranted, and further, that it may be a mistake to suppose, as many do, that the

"Iliad" is a collection of rhapsodies by different poets, I again asked myself: "Are there in Homer more anomalies in the nomenclature of colours than may be accounted for by the vague use of words? Are there more than we should find in this country among uneducated men of the labouring class?" About two years ago I made extensive inquiry as to the prevalence of colour-blindness among children, and in the village schools of this part of Somersetshire I found that the girls could name the neutral as well as the other tints readily and correctly, but that many of the boys had but about half-a-dozen words to use, and would refer orange to red or to yellow, and purple to brown or to blue, merely for want of terms; for they could match the test papers with other papers, or with the girls' dresses.

If we refer to the old ballads and early romance poetry of our own and other languages, we shall see that the popular poets of the middle ages, like the peasant boys of the present day, mis-used terms of colour as much as Homer; although the many beautiful paintings that still exist prove that people could see and distinguish colours as well then as now, and that Mr. Gladstone's theory of a development of the sight from one generation to another is a mere delusion. Certain terms are adopted and handed down traditionally as stock epithets in poetry and technical terms in trades. They are known to be wrong, but they are used from habit.

Dr. Pole assumes that the colour-blind see black and white as others do; or, to use his own words (p. 700), that their vision in regard to them is normal. This I doubt. One of the gentlemen who is so affected tells me that he cannot distinguish snow upon the steps of his front door. Now if white is a combination of all the colours of the prism, and we omit red and green, there will be seen a combination of blue and yellow, and these when spun together in a colour top produce stone colour, which I believe to be the white of those who have a dichromal vision. As to black, it is singular that in Anglo-Saxon *blac* means not "black," but as the Flemish *bleek* and Germ. *bleich*, "pale," a case in point to show the instability of language in these matters.

To take Homer's terms *seriatim* :—

Ἐρυθρός.

A poet must not be pronounced colour-blind if he compares wine to blood, and calls it red.

"The king sate in Dumfermline town, drinkin' the bluid-red wine."

Sir Patrick Spens, l. 1.

"And aye she dighted her father's wounds, His blood ran down like wine :"

Douglas Tragedy, st. 8.

Conversely, in slang language to give a man a bloody nose is to "tap his claret." The chair-cushion upon which I am sitting and the curtain of my window are of a dark crimson, but in the language of upholstery would be called "maroon." Now *marron*, from which the word is derived, is a Spanish chestnut, and that is a full brown without any visible red in it.

In our old English ballads and early romances, and in the German, Flemish, Swedish, and Danish, and in some more modern poems gold is constantly called "red" and "ruddy;" as in Dryden :—

"A crown of ruddy gold enclosed her brow."

In a German ballad by Ehrhardt, "Die Nonne," st. 5 :—

"Was zog er von seinem Finger? Einen Ring von Gold so roth."

In a Flemish ballad of the sixteenth century called "Het Soudaen's Dochterken" in Thijm's "Gedichten," v. i. p. 246 :—

"Sijn hayr dat blinkt van verwe schoon,  
Als waer het roode gouden."

In an ancient Swedish ballad called "Gångarpilten," Arwidss v. ii. p. 156 :—

"För jag har intet rödt guld att sätta mod er.

And in the corresponding Danish ballad, Dan. Viser iv. p. 122 :

"Jeg haver ei det røde guld."

Milton, "Paradise Lost," bk. ii. l. 889, calls flame "ruddy flame."

In old herbals, as in that of Lyte, fol. 1578, p. 162, mari-golds are called "Ruddes." "They be called in English Marygoldes and Ruddes."

Hair, such as is usually called "red hair," is better named in Greek *ῥυφός*, fiery; for certainly its colour is widely different from blood. Where in the Old Testament the word "red" is applied to horses and heifers, the Greek of the Septuagint has *ῥυφός*.

What is really red is on the contrary called by Jenner "pink" in the well-known poem upon the signs of wet weather :—

"Closed is the *pink-eyed* pimpernel."

To come to the very age we live in, old croquet-players persist in calling the second ball of the series "pink," although for the last ten years it has always been painted red.

Now if English should become a dead language, what will some future critic suppose *red* to have meant? a term that he finds applied to blood, to gold, to wine, to the marigold, to flame, and to bay horses; and replaced with *pink* in the case of the pimpernel and the second croquet-ball?

Φοινίξ.

This word meant originally Phœnician, a people from whom the richly-dyed robes that they imported were called; as in an old poem we have a colour designated from Bristol :—

"Her kirtle *Bristol red*;"

and as a deep blue dye is called "*indigo*" from being first brought from India.

The same word φοινίξ was applied to horses, probably Syrian ones in the first place, just as from Rouen we call those of a certain colour "*roan*," agreeably to a common usage in all languages. Thus porcelain is called "*China*," and a certain leather made of goats' skin "*Morocco*," although manufactured in Europe.

As to the term φοινίξ being applied to the lion and the jackal, we may well suppose that Homer never saw the one or the other. It is quite as unlikely that he ever saw a live dragon. If the horses that the Phœnicians introduced were tawny, it would be no misnomer to call the lion and jackal φοινίξ. We are not to presume that if Phœnician robes were crimson, everything else that was named after them must also have been crimson. A future critic might as reasonably argue that porcelain from China was of an orange colour, because there are "*China oranges*."

Dates were also called φοινίξ as being a Phœnician fruit, just as the small grapes imported from Corinth are called "*currants*."

Ῥόδαις.

This term referred, no doubt, to a crimson variety of rose, the so-called Damask rose, the one usually cultivated in ancient times. Thence a comparison of its colour to blood implied by a line of Bion :—

Αἷμα ῥόδον τίκτει τὰ δὲ δάκρυα τὰν ἀνεμώναν.

Where this word is applied to oil in the account of the funeral of Patroclus (Il. xxiii. 186), it is to a heavenly oil with which Venus anoints the corpse of Hector to preserve it from putrefaction, and not ordinary olive oil :—

ῥοδάεντι δὲ χρίεν ἐλαίω Ἀμβροσίω.

It may have meant either "*rose-coloured*" or "*rose-scented*."

Κυάνεος.

This term, which seems in so many passages to mean "*dark*," would have been very properly applied to the sand of volcanic islands, like those in the Egean Sea. On the coast of the Gulf of Naples near Pompeii it is quite black, and walking over it on a hot sunshiny day I had cause to remember its colour, for my feet were roasted.

Χλωρός.

Grass in the Mediterranean countries soon withers and dries to a pale colour, and remains so the greater part of the summer. It was to this withered grass that Homer seems to have compared a pale complexion, and honey, and olive wood, and the nightingale. Our evergreen meadows are unknown in the south.

Οἶνοψ.

The houses of the ancients were unprovided with glass windows, and were very dark within, so that entertainments must have been given by lamp-light, when wine of a dark colour would have appeared darker still.

Πορφύρεος.

A vague term, but equally vague our *purple*; for while we apply it to the foxglove and many other flowers which present an equal mixture of red and blue, we at the same time apply it to a beech, the foliage of which is of a deep copper colour merging into black without any blue in it at all; and in milliners' language to a deep blue without any red in it.

Ἰσσείδης.

What was the flower that the Greeks called ἴον, is very doubtful. That which Pindar describes (Ol. vi. 91) as with ξανθὰς

καὶ παμπόρφυρος ἀκτίσι, with brilliant yellow and richly purple rays, cannot be our own modest violet. I have always supposed it to mean Centauries of different species, some of them, as the *C. ragusina*, of the brightest gold colour, others, as the *C. cyanus*, of a clear blue, and others of a dark purple. The late J. Hogg in his treatise upon the classical plants of Sicily most unaccountably omits all mention of it. At the present day it is the stock, *Matthiola incana*, which in Italy is called *Violetta*. In the above line quoted from Pindar it must have been a radiate flower that he intended. In this respect uncultivated nations are very inaccurate. The Illyrians at the present day call all wild flowers alike indiscriminately *rosje*, roses; and we may be sure that Jesus Christ in his beautiful apologue—"Consider the lilies"—used the language of the people he was addressing, and did not mean lilies in the strict sense of the word; plants that would not burn if cast into an oven on the morrow of being cut down.

It is very strange that Mr. Gladstone in the essay published in the *Nineteenth Century* of October, 1877, has entirely passed over κροκόσπελος, saffron-robed, an epithet twice applied to Eos, the dawn of day, in the first lines of "Il." bk. 8 and bk. 19, a word that proves that Homer saw yellow distinctly; for he never calls Eos yellow-fingered, κροκόδακτυλος, or rosy-robed, ῥοδόσπελος.

In the above it has been my desire to prove that any inaccuracy in Homer's names of colours was due to the unfixed character of the language, and not to a defective vision on the part of the poet. In illustration of this view let me give a case that occurred to me about two years ago. I took to a flower show at Taunton a dahlia of a rather common variety, and such as most gardeners would call purple; a dark pink with a shade of blue over it, and requested forty-four different people to write me down what they would call its colour. In their replies I got fourteen different names for it. I sent a flower of the same kind to a lady who returned me twelve replies from members of her family and friends, and in the twelve were eight different names. How much more then may we expect diversity and inaccuracy in the nomenclature of their colours among the popular poets of an early period! and how little reason have we for believing in any gradual development of colour vision in successive generations of men!

R. C. A. PRIOR

### Colour-Blindness.

IN answer to Mr. Podmore's question in *NATURE*, vol. xix. p. 73, as to the appearance to me of [the green of the solar spectrum, I may say that such part of it as inclines to yellow is seen by me as faint yellow, and such part of it as inclines to blue is seen by me as faint blue. The line of division, which I may call neutral green, appears simply colourless or white; there is no dark space, no pigments; neutral green appears to me gray.

When I wrote the paper for the *Phil. Trans.* I applied the descriptions to colours obtained by pigments, because that was the mode that had previously been adopted in treating the subject, and I had not, at that time, the opportunity of making any good observations on direct light. At a later period I went through a series of experiments of the kind with an eminent physicist, but I am not aware that the results have been published. I will endeavour, if possible, to supply the desideratum.

WILLIAM POLE

### The Colour Sense

THE note of Mr. Grant Allen in *NATURE*, vol. xix. p. 32, induces me to state that in the year 1877 I arrived at and developed exactly the same conclusions in several articles of the German journal, *Kosmos* (vol. i. pp. 264-275 and 428-433), namely :—

1. The colour-sense manifestly appears already in insects and many of the lowest vertebrates; its complete absence could therefore hardly be supposed in the very lowest race of men.

2. The anomalies shown in the expressions of colours among the most ancient civilised nations by Gladstone, Geiger, and Magnus, may be perfectly explained, partly by the insufficiency of the primitive store of words for this subject, partly by climatic, physiological, and optical reasons, as stated at length in the above-mentioned articles.

3. The usage of telling terms for the single colours closely followed the progress of the art of dyeing. ERNST KRAUSE  
Berlin, December 2